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ENDANGERED SPECIES TECHNICAL BULLETIN

Department of the Interior • U.S Fish and Wildlife Service • Endangered Species Program, Washington, D.C. 20240

Black Rhino Found Endangered

Hunted extensively for its valued horn, the African black rhinoceros *(Diceros bicornis)* has been determined by the Service to be an Endangered species (F.R. 7/14/80). Based on available data, the Service believes there may be fewer than 15,000 black rhinos remaining in the world.

One of five species of rhinoceroses occurring in Africa and Southeast Asia, the black rhino is the most numerous of the world's rhinos and yet appears dangerously threatened with extinction. In Kenya, probable losses over the last five to eight years have been figured at 95 percent of the black rhino population in Tsavo National Park, 85 percent in Amboseli, and over 90 percent of those that once survived in Meru National Park.

These dramatic losses are due primarily to trade in the species' parts and products. East African statistics on the legal export of rhino horn, which are carved into dagger handles or used in powdered form for medicinal purposes or as an aphrodisiac, show that 1.56 tons were exported annually from 1950-1971. From 1972-1976, legal exports jumped to 4.2 tons annually. In one instance, a single rhino horn reportedly sold for approximately $15,000.

The biology of the black rhino may also be contributing to its demise. For a species that exists largely as solitary individuals at a naturally low density, the severe declines cause further problems by reducing the probabilities of reproduction. Also, the rhino is easy to stalk and those animals that are left show evidence of extreme disturbance in response to harassment.

The proposal to list the black rhinoceros (F.R. 10/1/79)—see the November 1979 BULLETIN) drew mainly supportive comments. The only non-supporting comment came from Safari Club International, which recommended Threatened status for the species throughout most of its range except Kenya, where they agree the black rhino is Endangered. According to the Service, the black rhino is in danger of extinction throughout all or a significant portion of its range (the defnition of Endangered under the Endangered Species Act of 1973). Listing this rhino as Endangered in parts of its range and Threatened in others would be inconsistent with the Act's intent.

Although the black rhinoceros is protected under the Convention on International Trade in Endangered Species of Wild Fauna and Flora (it is on Appendix I), listing under the Endangered Species Act will provide additional prohibitions against importing the species or its parts and products into the U.S., as well as restricting transportation or sale in interstate or foreign commerce. Listing under the Act will also allow the U.S. to provide, if requested, technical expertise for establishing management and recovery programs and funds to assist in the implementation of such programs by appropriate foreign governments.

Photo by C. Kenneth Dodd, Jr.

Kenya's Meru National Park, only two years ago considered a stronghold for the black rhino, is now home to less than 20 specimens.

REGIONAL BRIEFS

Endangered Species Program regional staffers have reported the following activities for the month of July.

Region 1. A cooperative agreement was signed with the Hawaii Department of Land and Natural Resources, paving the way for purchase of Kaelia Pond on the Island of Maui, and allowing for future resale to the State. The resale would be with the provision that the State showed management capability for the Hawaiian waterbirds occurring at the pond.

The cui-ui *(Chasmistes cujus)* propagation program is proving a success. So far 1.8 million fry have been released in the lower Truckee River in Nevada. An expected 2 million fry will be released by season's end.

The Oregon Native Plant Society and the Service sponsored a Threatened and Endangered Plant Symposium held in Ashland, Oregon. More than 200 attended.

Region 2. Of the 41 pups born to the red wolf *(Canis rufus)* captive breeding program during 1980, 28 survived to 3 months of age, a 68 percent survival rate, the highest the program has achieved to date.

Region 3. The Northern States Bald Eagle Revovery Team met in New York to view the hacking facilities at the Montezuma National Wildlife Refuge, with which they were greatly impressed.

The Kirtland's Warbler Recovery Team met to discuss updating the recovery plan.

Region 4. State and Service personnel began a cooperative effort on July 21, 1980, to capture the four dusky seaside sparrows *(Ammospiza maritima nigrescens)* sighted during an intensive survey conducted earlier this year in Florida. Three have been captured so far, bringing the total number in captivity to five. All six birds are known or presumed to be males. Development of captive breeding and sperm preservation techniques are currently in progress (see our April 1980 Special Report).

A total of 417 snail darter *(Percina tanasi)* juveniles captured last fall in the Tellico Dam project area, and held over winter in the Morristown State Fish Hatchery, were stocked into the Elk River, Giles County, Tennessee. The Elk is the third river to receive a substantial number of snail darters since the transplant program was started in 1975.

Region 5. Service personnel met with State officials, university professors, and representatives of The Nature Conservancy to explore possible protection of segments of the St. Johns River in Maine. Ongoing research on Furbish lousewort *(Pedicularis furbishiae)* populations was reviewed and population inventories conducted with U.S. and New Brunswick (Canada) officials.

Rhode Island has been declared eligible for Endangered Species Cooperative Agreements for plants and for fish and wildlife. They will be the 11th State involved in the program once the agreements are signed.

Region 6. The total population (seven plants) of *Phacelia argillaceae,* an Endangered plant in Utah, was reduced to four plants in May because of trampling by sheep. The remaining population is being fenced for protection.

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U.S. Fish and Wildlife Regions

Region 1: California, Hawaii, Idaho, Nevada, Oregon, Washington, and Pacific Trust Territories. **Region 2:** Arizona, New Mexico, Oklahoma, and Texas. **Region 3:** Illinois, Indiana, Michigan, Minnesota, Ohio, and Wisconsin. **Region 4:** Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Puerto Rico, and the Virgin Islands. **Region 5:** Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, Virginia, and West Virginia. **Region 6:** Colorado, Iowa, Kansas, Missouri, Montana, Nebraska, North Dakota, South Dakota, Utah, and Wyoming. **Alaska Area:** Alaska

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CAPTIVE-BRED ANDEAN CONDORS RELEASED IN PERU

Michael Bender

The first release of Endangered, captive-bred Andean condors *(Vultur gryphus)* into wild habitat has been an apparent success. Shortly after the six young vultures were set free several weeks ago, they joined a small existing population in the coastal mountains of Peru, soaring alongside the older birds and adopting their feeding habits.

This encouraging news follows a 13-year experimental condor breeding project conducted by the U.S. Fish and Wildlife Service's Patuxent Wildlife Research Center near Laurel, Maryland (see the November 1976 BULLETIN). Although the Andean condor is the immediate beneficiary, the ultimate goal is to gain new information for saving its more critically Endangered relative—the California condor *(Gymnogyps californianus).*

The Andean condor program began in late 1966, when nine immature wild birds were captured in the Argentinian highlands and brought to the Patuxent Center. Eventually, after the condors formed four pairs, scientists discovered ways to double, and in some cases even quadruple, normal egg production. The resulting chicks became part of a small, self-sustaining captive population from which the six juveniles were selected for the reintroduction effort.

On July 11, the young condors were flown from Dulles International Airport, Virginia, to Lima, Peru. They were accompanied on their 8-hour flight by Dr. James Carpenter, endangered species research veterinarian at the Patuxent Center. Upon transfer of the birds to the release sight on the Sechura Peninsula, they were placed temporarily in enclosures until they became accustomed to their new surroundings.

Researchers from the Patuxent Center (and its field station in California), the National Audubon Society, the University of Wisconsin, the Bronx Zoo, and the Crandon Park Zoo in Florida, along with Peruvian biologists, are cooperating on the Andean release project. The next phase is to observe the young condors' movements and their interactions with the wild birds. Before their release, the introduced condors were fitted with small solar-powered radio transmitters which will allow researchers to track them through the remote mountains for up to 5 years. Under contract with the Service, Dr. Stanley Temple and Michael Wallace of the University of Wisconsin are directing the release and monitoring activities.

The six young condors now in Peru range in age from one to three years. Another group of five nestlings—one from Patuxent and four from the Bronx Zoo—will be released later this year. Through the use of different age groups, scientists hope to learn the most successful procedures for reintroducing captive-bred condors to the wild. This information, along with new capture and radio-tracking techniques, may give biologists a better chance to insure survival of both the Andean and the California condor. (For a fuller explanation of the California Condor Recovery Program, see the May 1979 Special Edition of the BULLETIN.)

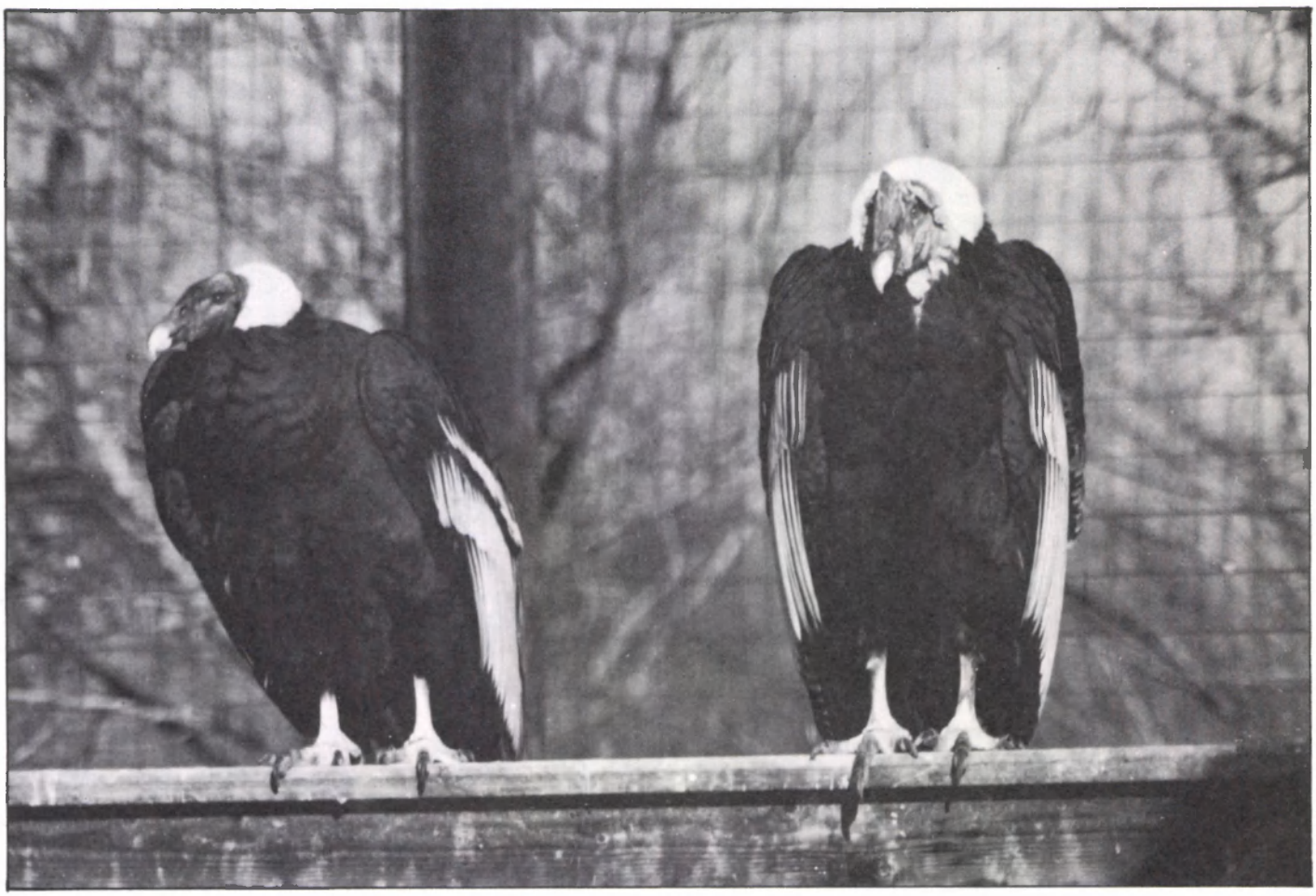

Photo by Michael Bender

These Andean condors are part of the captive breeding program at the Patuxent Wildlife Research Center, which led to the successful reintroduction in South America.

CRACK DOWN RESULTS IN TWO SEA TURTLE INDICTMENTS

Clare Senecal

Grand juries in Brownsville, Texas, and Miami, Florida, recently returned indictments on a number of seafood firms and associated individuals for illegal trade in Endangered Pacific (olive) Ridley *(Lepidochelys olivacea)* sea turtles. The indictments follow year long and 18 month investigations, respectively, by government wildlife and customs agents.

A 12-count indictment was handed down on July 22, 1980, in Brownsville on two seafood firms and their owners for illegally importing and receiving over eight tons of endangered sea turtle meat. Service officials estimate that about 1,300 individuals had to be slaughtered to obtain the eight tons of filet tips, and chunks of turtle meat imported by the Texas and Pennsylvania firms.

Two of the individuals were charged with illegally receiving, concealing, and selling the protected meat which they knew had been imported into the United States in violation of the Endangered Species Act of 1973. One of them was also charged with importing meat fraudulently labeled as fish filets.

The Miami indictment, handed down on August 7, 1980, involves four men and six corporations for illegally importing 45 tons of meat from the Endangered Pacific Ridley into this country, and is the largest case in the Nation's history involving the smuggling of sea turtle products. A 13-count indictment charges the defendants with conspiracy, transporting sea turtle meat with fraudulent documents, or importing turtle meat in violation of the Act and the Convention on International Trade in Endangered Species (CITES). Service officials estimate that about 7,500 individuals from Mexico had to be slaughtered to obtain the 89,572 pounds of meat tips, chunks, and filets that were illegally imported into Miami International Airport between January 1978 and June 1979.

In the Miami indictments, two Mexican nationals and three Mexican companies were named.

All but one of these individuals and companies were involved in a conspiracy, the indictment charges. According to it, the defendants agreed to use the term "chunked turtle meat—*Dermatemys mawii*" on the various customs entry documents accompanying the shipments. *Dermatemys mawii* is a Mexican fresh-water species of turtle whose importation into the States at present is legal.

Both the Brownsville and Miami cases are part of a larger Federal crackdown by five agencies aimed at curbing the booming illegal trade in endangered species products in the United States. The participating agencies are Interior's Fish and Wildlife Service, National Marine Fisheries Service in the Department of Commerce, U.S. Customs Service in the Department of Treasury, the Animal and Plant Health Inspection Service in the Department of Agriculture, and the Department of Justice.

It is a violation of the Act to import any type of sea turtle products, including meat, into the United States. This country banned all imports of sea turtle products in 1978. The breeding colonies of the Ridley turtle on the Pacific coast of Mexico and the Gulf of California were listed as Endangered in 1978. Elsewhere, the species is listed as Threatened.

The adult Pacific Ridley weighs an average of 85 pounds and yields about 12 pounds of meat per animal. The meat, oil, and eggs of this species are in high demand, the prized meat going into the restaurant market and the eggs used in cooking and eaten as an aphrodisiac. In addition, the hides of the Ridley can be tanned and fashioned into shoes, handbags, and belts.

Collectively, the four species of sea turtle most heavily exploited for illegal trade (green, hawksbill, Atlantic Ridley, and Pacific Ridley) represent the most profitable wild animal on the international market today. Raw tortoise-shell, for example, now exceeds the prices paid for elephant ivory. Over 50 percent of a sea turtle—meat, shell, skin, and oil—is marketable in some form.

Criminal violations of the Act carry a maximum fine of $20,000 and a jail sentence of up to 1 year. Criminal violations of customs law carry a maximum fine of $10,000 and a jail sentence of up to 5 years.

SERVICE PROPOSES CHANGES TO

The Service has issued a proposal which would allow nationwide sale of American alligator *(Alligator mississippiensis)* meat and parts, except hides (F.R. 8/8/80). The proposal would revise the special rule on the American alligator which now requires buyers, tanners, and fabricators who handle American alligator hides to obtain a permit. The States of Louisiana and Florida have requested that the Service eliminate the need for fabricators to obtain a permit, if possible.

In the process of becoming manufactured products, American alligator hides, as well as the hides of other crocodilians, are funneled through a limited number of tanners worldwide who are capable of fully tanning marketable hides. At the end of this bottleneck numerous fabricators await who are capable of manufacturing marketable products from the hides. Eliminating the permit requirement for fabricators would enable the Service to concentrate its enforcement efforts where they are likely to be most effective—at the point where the alligator hides are tanned. The Service would closely regulate the activities of buyers and tanners so that only lawfully-taken hides are tanned.

The Service has also been requested by the State of Louisiana to allow nationwide sale of meat and parts, other than hides, from lawfully-taken American alligators. Under the proposal, American alligator meat and parts, other than hides, may be sold or otherwise transferred anywhere in the United States, if the items are sold in accordance with the laws and regulations of both the State in which the taking occurs, and the State in which the sale occurs.

Although the Service has not required any particular form of State control over the sale of meat and parts from lawfully-taken American alligators, the Service continues to oppose unregulated sale. The following conditions may be imposed: (1) persons buying or reselling meat or parts must have a State license or permit, (2) current records of transactions must be maintained, (3) State officials, upon notice

DALLAS - FT. WORTH PROPOSED AS DESIGNATED PORT

Dallas-Ft. Worth, Texas, was proposed (F.R. 7/14/80) to become the ninth Federally designated port-of-entry for wildlife and wildlife products. Conferring port status on Dallas-Ft. Worth would allow the importation and exportation of fish and wildlife and related products through the world's seventh largest airport, serving both the metropolitan area and the south-central and southwestern United States. Currently designated ports-of-entry are New York City, Los Angeles, Chicago, Miami, San Francisco, New Orleans, Seattle, and Honolulu. Under Federal law, most wildlife products must be routed through one of these ports for inspection by the Fish and Wildlife Service.

ALLIGATOR RULES

and subject to applicable limitations of law, must have an opportunity to examine inventory of meat or parts and records, and to copy records, and (4) meat sold in interstate commerce must be prepackaged and bear an identifying insignia or notation.

Public comments on this proposed rule were due by September 8, 1980.

FLORIDA UNDERTAKES THREATENED BUTTERFLY STUDY

submitted by Gerold Morrison, Florida Game & Fresh Water Fish Commission

The Florida Game and Fresh Water Fish Commission has begun a one-year study of its two Threatened butterflies, the Bahaman (*Papilio andraemon bonhotei* Sharpe) and Schaus (*P. aristodemus ponceanus* Schaus) swallowtails, with funding assistance from the Fish and Wildlife Service. The study was initiated on April 1, 1980, and will culminate in the preparation of a Recovery Plan for the two species.

Ongoing habitat destruction, coupled with severely restricted geographic ranges and possibly intense collecting pressure, motivated the listing of these butterflies as Threatened under the Endangered Species Act in April 1976.

Schaus Swallowtail

P. aristodemus ponceanus presently occurs in portions of the upper Florida Keys. Its former range extended south to the middle (and perhaps lower) Keys and as far north as the Miami area. Other subspecies of *P. aristodemus* occur on Cuba, Hispaniola, and the Bahamas. Although data concerning fluctuations in population size and geographic range are not available, habitat destruction appears to be a major factor in the current range contraction.

This swallowtail is a forest insect, known only from upland "tropical hardwood hammocks" in which its host plants (*Amyris elemifera* and *Zanthoxylum fagara* [*Rutaceae*]) occur. Selective logging and farming, followed by intensive commercial development, have severely disrupted the native hammocks in many areas of the Keys. Recent sightings of the butterfly have been restricted to the islands within Biscayne National Monument and portions of northern Key Largo, where habitat disruption has been less severe. However, a new freshwater pipeline planned for northern Key Largo may allow more intensive development to occur there, posing a threat to both the forest and the butterfly.

Anecdotal accounts in the literature suggest the *P. aristodemus ponceanus* population sizes can fluctuate a great deal from year to year. Relatively high densities within certain portions of its range were reported during 1969-1972. In general, however, the butterfly appears to have been rare throughout its range during much of the present century. Unusually low densities were reported during 1973-1975, and the present study indicates similarly low densities during the 1980 reproductive period. However, low numbers during 1980 cannot be attributed to habitat disturbance or to absence of the proper host plants, as they occur in areas which have not been recently disturbed and in which host plant abundances are high. The first quantitative data on egg and larval densities are being accumulated as part of the study, along with information concerning the sources and intensity of mortality during the immature stages. It is hoped that this information will serve as a baseline for future investigations of *P. aristodemus ponceanus* population dynamics. More detailed data concerning the butterfly's basic habitat requirements are also being sought.

Bahaman Swallowtail

Unlike the Schaus swallowtail, the Bahaman Swallowtail, *P. andraemon bonhotei* is not thought to have maintained breeding populations in North America during the present century. Rather, the butterfly has traditionally been considered an accidental visitor. Sporadic sightings in Florida have been dismissed as representing dispersing individuals or temporary unsuccessful colonization attempts.

P. andraemon is an Antillean species, with separate subspecies known from Cuba, Grand Cayman, and the Bahamas. A Cuban subspecies colonized Jamaica during the 1940's and is reported to be an occasional pest of citrus there. *P. andraemon bonhotei* occurs on several islands in the Bahamas, where the larvae feed on *Citrus* spp. and other members of the Rutaceae.

The inclusion of this butterfly on the Federal list of Endangered and Threatened species has been criticized by some lepidopterists, on the grounds that the status of the insect within the U.S. has not yet been adequately determined. Two unworn individuals collected near Miami during the 1940's have been cited as evidence of successful reproduction within Florida, as has a reported sighting of large numbers of adults within Biscayne National Monument in 1972. On the other hand, adults have been collected infrequently in Florida, leading several authorities to suggest that only temporary breeding populations become established following periodic colonization from the Bahamas. The butterfly has not been sighted in Biscayne National Monument in recent years, and conclusive evidence of a breeding population has not been obtained. Such evidence is now being sought, although no individuals of this species have yet been sighted during the study.

DEVIL'S HOLE PUPFISH RECOVERY APPROVED

The Devil's Hole pupfish *(Cyprinodon diabolis),* which occurs naturally only in Devil's Hole, a deep, water-filled, limestone cavern in Ash Meadows, Nye County, Nevada, stands to benefit from a Service-approved recovery plan. Because of its restricted habitat, the Devil's Hole pupfish was declared an Endangered species (F.R. 3/11/67).

The spring pool of Devil's Hole is located approximately 15 meters below the land surface where a shallow rock shelf approximately 2 by 4 meters is located. Just beyond the shelf, the spring descends to an unknown depth (more than 80 meters) into a myriad of chasms, mostly unexplored. Most of the pupfish reproductive and feeding activity takes place on the shallow shelf.

Population numbers of this pupfish fluctuate between the summer and winter months because of the amount of sunlight which penetrates their cavern habitat. Population numbers are higher during the summer when approximately 4 hours of sunlight penetrates the cavern daily. In winter, no direct sunlight reaches the water surface.

A transplanted population of *Cyprinodon diabolis* was established in 1972 in the Hoover Dam Refugium, an artificial refuge below Hoover Dam, Clark County, Nevada. This is now a reproducing population with numbers fluctuating from 48 to 69. The transplant population exhibits an overall increase in body size from the original Devil's Hole population.

The major threat to the pupfish is the reduction or complete loss of water needed to maintain its essential habitat. Other potential threats include surface runoff carrying sand, silt, and other habitat degrading elements, vandalism and accidents, and major land use changes in the surrounding area.

The primary objective of the recovery plan is to restore and maintain the Devil's Hole pupfish as a Threatened species in its natural habitat. According to the recovery team, the preservation of Devil's Hole in a natural condition is of the utmost importance in guaranteeing the survival of this species.

The plan recommends on-site patrols of Devil's Hole. Personnel could monitor the condition of the site, and their presence would discourage vandals.

To deal with the immediate threat of agricultural pumping on the water level, the plan calls on government and private interests to develop a plan for the Ash Meadows area based on a carrying capacity that will not adversely affect Devil's Hole.

It is the goal of the recovery effort that Devil's Hole will eventually be restored to its natural water level of 1.4. (Measured in feet, water levels in Devil's Hole are designated by distance below a U.S. Geological Survey datum point installed on the rock wall above maximum water level.) This is not feasible at present, thus an interim level of 2.7 percent has been shown to provide sufficient habitat for the survival of the species.

At Devil's Hole, management should be directed toward maintaining a population which corresponds to natural habitat conditions. Under such conditions, populations are estimated to have been not less than 300 fish during late winter and maximum of not less than 700-900 fish during the late summer and early fall.

According to the plan, the Hoover Dam population can be used for research procedures such as habitat manipulation in the form of changing water temperature, food availability, substrate, and a variety of other factors. The determination of the effects that such manipulations have on the pupfish will aid in the preservation of the species.

Another recommendation by the recovery team is the establishment of new populations of Devil's Hole pupfish. The Amargosa Pupfish Station has been constructed for this purpose. The number of fish to be transplanted will not pose a threat to the native Devil's Hole population.

The recovery plan calls for an educational and public information program to include signs posted at the habitat sites, slide shows, and even displays at public aquaria.

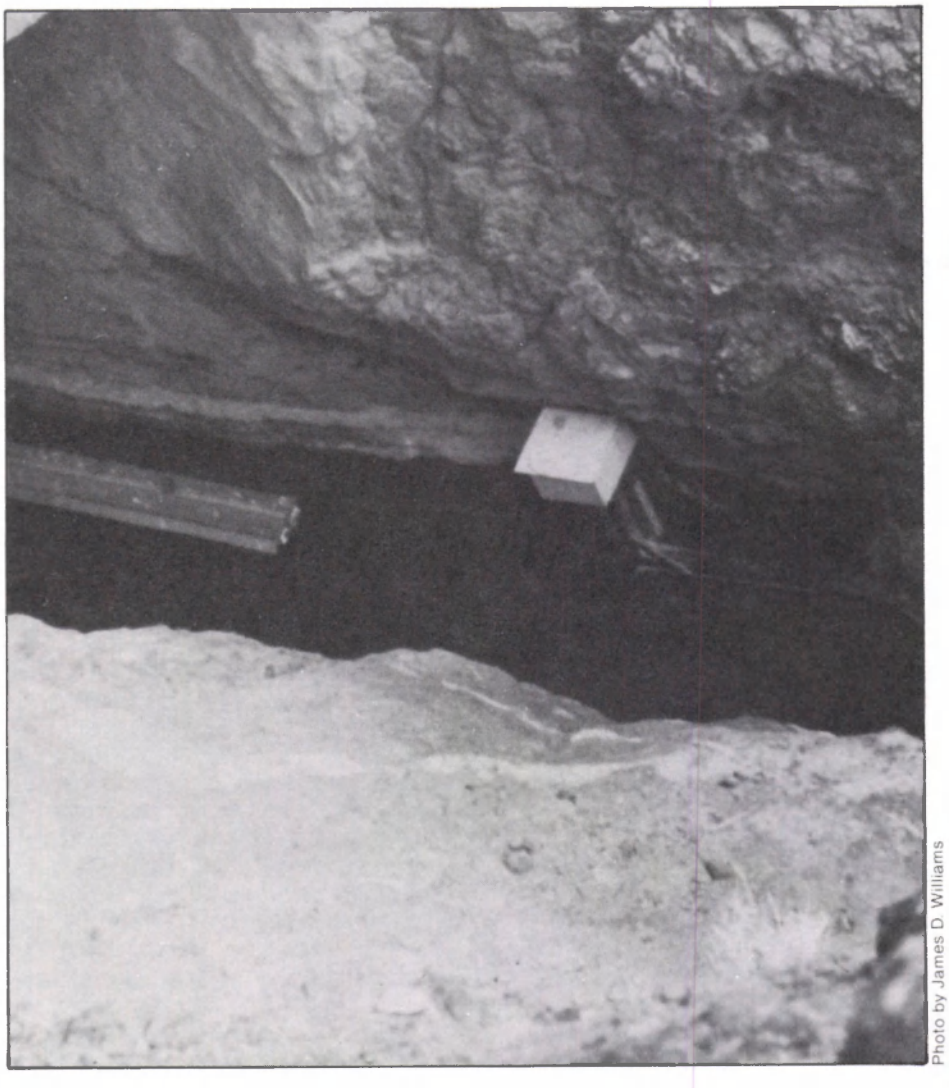

Photo by James D. Williams

The Devil's Hole Pupfish Recovery Plan calls for the protection of this deep cavern, the only site where the species naturally occurs.

THE INCREDIBLE PEREGRINE—ON THE REBOUND?

"The Peregrine falcon is, perhaps, the most highly specialized and superlatively well developed flying organism on our planet today, combining in a marvelous degree the highest powers of speed and aerial adroitness with massive, warlike strength. A powerful, wild, majestic, independent bird, living on the choicest of clean, carnal food, plucked fresh from the air or the surface of the waters, rearing its young in the nooks of dangerous mountain cliffs, claiming all the atmosphere as its domain and fearing neither beast that walks nor bird that flies, it is the embodiment of noble rapacity and lonely freedom. It has its legitimate and important place in the great scheme of things, and by its extinction, if that should ever come, the whole world would be impoverished and dulled."

G. H. Thayer, 1904, *Bird Lore*

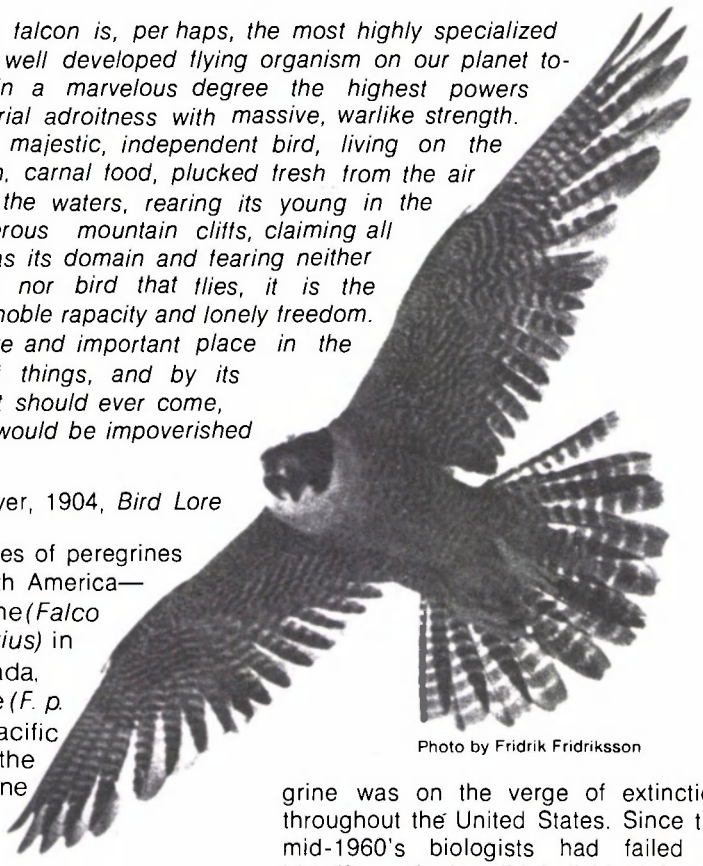

Photo by Fridrik Fridriksson

Three subspecies of peregrines are found in North America—the Artic peregrine *(Falco peregrinus tundrius)* in Alaska and Canada, Peale's peregrine *(F. p. pealei)* in the Pacific Northwest, and the American peregrine *(F. p. anatum)* in the rest of the continent.

Peregrines have never been numerous in this country. During the 1940's, there were an estimated 500 to 1,000 breeding pairs. By the early 1960's, there were no nesting peregrines left east of the Rockies. Less than 150 pairs were still nesting in the mountainous areas of the west from Washington to New Mexico. Meanwhile, the Arctic peregrine also suffered a serious but less catastrophic decline.

Reduced to precarious lows, the American and Arctic peregrine falcons were listed for protection as "Endangered" species in 1970, when the effort to boost their recovery was begun in earnest.

Dona Finnley

Revered as one of the world's most magnificent birds of prey, the peregrine falcon is a gifted and graceful flier—prized since ancient times for its strength, beauty, and aerial skills as a symbol of avian nobility.

A decade ago, the American peregrine was on the verge of extinction throughout the United States. Since the mid-1960's biologists had failed to identify a single wild individual in the U.S. east of the Rockies. But, this spring, thanks to the devoted efforts of ornithologists, falconers, and conservationists, four young peregrines were hatched in the wild in the East—bringing with them renewed hope for the survival of this unique species in North America.

The successful parents—themselves captive-bred by The Peregrine Fund of Cornell University in a cooperative program with the U.S. Fish and Wildlife Service, State fish and wildlife agencies, and conservation organizations—had been released as part of an intense campaign to restore the depleted peregrine as a nesting bird in the Eastern United States.

Although shooting and habitat loss have taken their toll on the peregrine, the species' dramatic decline in this country was mainly the result of the widespread, indiscriminate use of DDT and other persistent pesticides in the 1950's and 60's.

Biologists are now encouraged that self-sustaining populations of the peregrine may indeed be re-established in the East. "This is the final test, the proof of the pudding," said Dr. Thomas J. Cade, director of The Peregrine Fund, about the newly-hatched young. "This is what we've been waiting to see, proving that our techniques work. The final hurdle was what has just been accomplished—namely, that these captive-bred peregrines can reproduce on their own."

New Jersey Successes

The success this year in New Jersey marks the first time in over 20 years that peregrine falcons have been known to fledge their own young from eyries in the Eastern U.S.

Early in March, six captive-reared peregrines that had paired in 1979 were sighted by State biologists near their release sites in New Jersey's coastal marshes. By the first week in April, two females had apparently laid eggs and were no longer leaving their nests.

Around May 3rd, a lone, long-awaited female emerged from its egg atop a man-made tower on the Service's Brigantine National Wildlife Refuge on the Jersey coast. (The hatchling was the product of a female released just 2 years earlier at Manahawkin, and a male also released in 1978 from Barnegat Bay—a third New Jersey reintroduction site.)

The second triumphant pair produced two male hatchlings and a female sometime around May 7 at Manahawkin, on property owned by the A.T. & T. Long Lines Division (and managed by the Barnegat National Wildlife Refuge). The female parent was released at Barnegat Bay in 1978, while the male adult was apparently released from the same site in 1975.

Both nests were supplemented with an additional female chick in an effort to improve this year's rearing success and promote increased numbers for breeding in future years. All of the fledglings had tested their wings by June and, within another month, had learned to take their own prey.

Through its Division of Fish, Game, and Wildlife, New Jersey was one of the first States to cooperate with Cornell's Peregrine Fund in the restoration of the peregrine by "hacking" them to man-made towers. A technique used for centuries by falconers, *hacking* is the painstakingly delicate process of weaning nestling raptors back to the wild. Whether on specially-erected towers

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or at natural cliff sites, nestlings are placed in a hack box where they are fed unobtrusively by humans until they are about to fledge. The birds are then allowed to wander on their own, gradually learning to fly and hunt for themselves (under watchful human eyes) until they become fully self-sufficient.

With two-thirds Federal matching fund assistance from our Service, New Jersey's recovery program began when the first hacking tower was erected near Barnegat Light in 1975, with a second, third, and fourth tower built in subsequent years. (Including the 6 released in 1980, more than 60 captive-produced young have been hacked from towers on New Jersey's coast in the past 5 years.)

Paul D. "Pete" McLain, who supervises the State's Endangered and Nongame Species Project, says the towers were immediately successful in attracting the adults back to the sites where they were hacked. "We were so very hopeful in 1979, when a pair laid and attempted to incubate three eggs that were later found broken on the Manahawkin tower. But we are now especially gratified by our 1980 success," adds McLain, "largely the result of the combined dedication of our own endangered species biologists and the personnel of The Peregrine Fund."

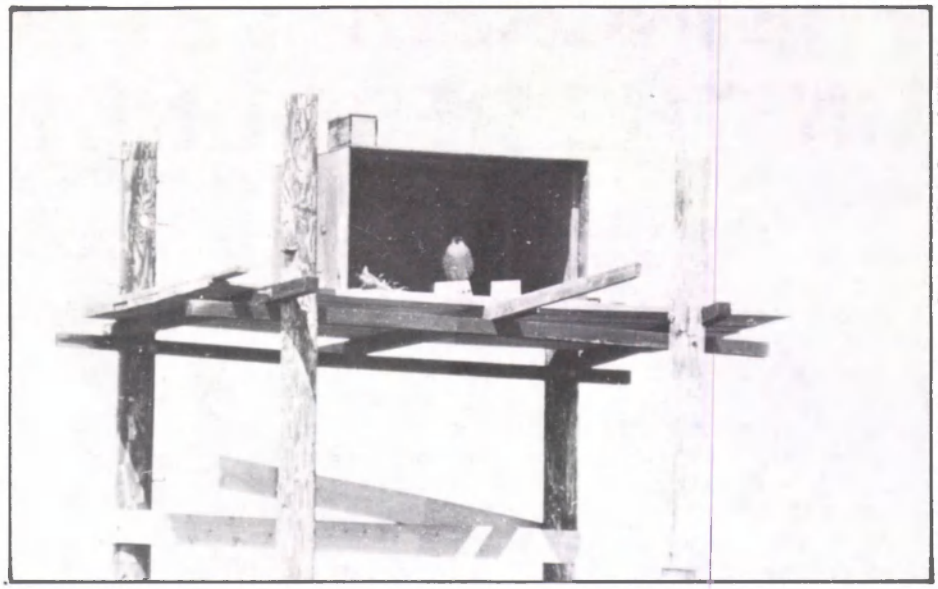


Photo courtesy of the New Jersey Division of Fish, Game & Wildlife

Photo courtesy of The Peregrine Fund

Clustered to the left are three of the first peregrine falcons hatched in the wild in the Eastern U.S. in more than 20 years. (The fourth chick was later added to the brood.) All have since fledged from this hack station in Manahawkin, New Jersey, erected as part of the Cornell/New Jersey reintroduction project—where one of the successful nesting peregrines was released only 2 years ago.

Eastern Reintroductions and The Fund

From 1975 through 1980, 272 captive-reared peregrine falcons have been released at 20 locations in nine eastern States under the cooperative program between Federal and State agencies, supporting organizations, and The Peregrine Fund.

In 1970, Cornell University launched its pioneering program with the construction of its "hawk barn"—a unique chamber designed to house and propagate peregrines on a large scale. Tom Cade, a long-time falconer and raptor biologist who has directed Cornell's Peregrine Fund since its inception, started the program out of his own devotion to restoring the peregrine to the wild in the East. Cade hired James D. Weaver to head up the propagation effort in 1971. Using various approaches including artificial insemination, Weaver and Cade have raised nearly 400 birds for use in the release program, with their original breeding stock contributed by falconers (or birds that had themselves been bred in captivity since they were nestlings).

As the young birds derive important behavioral traits from association with the parent birds, all Cornell chicks intended for breeding in the wild have been raised by adult falcons, with exposure to humans kept at a minimum. Viewed through one-way glass surrounding Cornell's breeding chambers, mating is generally preceded and followed by an elaborate ritual. Actual copulation is accomplished in about 4 seconds, with the male alighting on the female's back, and should result in a fertile peregrine egg in 18 hours.

The eggs are then placed in one of 10 incubators, where they develop for about 5 weeks before hatching. Housed for up to 3 weeks in aluminum pans, the hatchlings are eventually returned to an adult pair for another week or two. Then they are taken from the barn, and the process of hacking is begun.

Personnel at the Fund had always considered their reintroduction efforts "experimental" in nature, with the basic objectives of developing release techniques and determining whether or not the hacking process offers a reliable way of re-establishing breeding peregrines. But this year's success should bring the Fund and its supporters closer to their eventual aim of building up an entire self-sustaining peregrine population on the east coast.

Working toward this goal, release sites have been carefully located either in close proximity or along geographic features such as river drainages and coastlines to increase the likelihood that released birds will find one another,

Photo courtesy of The Peregrine Fund

"Scarlett," a Cornell-bred peregrine, with two of the chicks she adopted and raised last year atop Baltimore's tallest building.

pair, and breed. Steven Sherrod, in charge of the Fund's eastern reintroduction program, said the past 3 years' releases have been concentrated in three regions: coastal New Jersey, the Chesapeake Bay, and New England. "In effect, we've been trying to saturate each region to build up three population centers," he said. Releases in New Jersey and the Chesapeake Bay have been from artificial sites, while those in New England have been from natural cliffs where records indicate a history of preregrine occupancy.

Four refuges in the Service's 412-unit chain of National Wildlife Refuges are currently hosting release projects: Brigantine and Barnegat in New Jersey, and Chincoteague and Fisherman's Island in Virginia.

City Sites

Not only are man-made towers considered ideal for the hacking of peregrine falcons; tall city buildings are also looked to as promising release sites under the right circumstances.

The nesting of peregrines atop skyscrapers—as their own preferred alternative to cliffs—is not without precedence. The birds have in the past been observed occupants of city buildings in Europe, Asia, Africa, and Australia, as well as in North American cities such as Montreal, New York, and Philadelphia.

In some ways, the city environment is perfectly suited for the raptor—providing an abundance of pigeons, starlings, and other birds on which to feed, as well as protection from hunters. It is also relatively free from nest predators, like the ubiquitous great horned owl so often found at natural eyries.

A city release was sponsored by the Fund and our Service last year in the Nation's capital, when four young peregrines were hacked into the wild from the roof of the Department of the Interior. (Peregrines were known to nest in the Washington, D.C. area along the Potomac River in the mid-1930's.

A second release project in Washington was conducted by The Peregrine Fund this summer from the Smithsonian Institution. Six hatchlings approximately 6 weeks old were placed on one of the "Castle" towers in June, and have since adapted to the "wild" around the Smithsonian mall and Capitol Hill.

Perhaps the best known city dweller of the East, however, is Scarlett—the Cornell-reared peregrine who adopted Baltimore's tallest building as her home after her countryside release 2 years earlier in the U.S. Army's Aberdeen Proving Ground in Maryland. Last year, she was apparently stimulated into breeding behavior by her own reflection in the glass of U.S. Guaranty and Fidelity's 33rd floor, and laid three infertile eggs. Four nestlings were promptly sent by Cornell as substitute's for the eggs, and Scarlett proved a model mother.

This spring, a 2-year old male named Rhett was brought to Baltimore with great hopes that the two would pair and breed. They took to each other right away—the first successful effort to establish a pair bond between a wild and a trained falcon. (Unfortunately, they met too late to mate in 1980, although the pair together raised Cornell-introduced chicks this year.)

Late in July, peregrines were returned to New York City after a 35-year absence. Three "eyases" were placed atop the Manhattan Life Insurance Company building on 57th Street as part of the Cornell program (this time with additional financial support from the World Wildlife Fund-U.S.). Their new home includes a view of Central Park where pigeons abound, and it is hoped that they will one day return to the Big City to breed.

In a fourth cooperative venture—between Cornell, The College of William and Mary (with matching funds from the Service through Virginia's grant-in-aid program), and the Virginia National Bank—six young peregrines were introduced to a hack box on the 7-story Royster Building in Norfolk. Hacking

Continued on page 16

Rulemaking Actions

July 1980

SERVICE DETERMINES STATUS, CRITICAL HABITAT FOR FOUR SAN MARCOS RIVER SPECIES

In a final rule, the Service has listed the San Marcos salamander *(Eurycea nana)* and the San Marcos gambusia *(Gambusia georgei)* as Thretened and Endangered species, respectively, and has determined Critical Habitat for these two species and that of the Texas wild rice *(Zizania texana)* and fountain darter *(Etheostoma fonticola)* (F.R. 7/14/80). These species will receive full protection under the Endangered Species Act of 1973, as amended, with the single exception that the San Marcos salamander has been listed with special rules which allow taking in accordance with Texas State law.

The San Marcos salamander and gambusia were proposed for listing with Critical Habitat on July 14, 1978 (see the August 1978 BULLETIN). On March 6, 1979, the Service withdrew all pending Critical Habitat proposals in compliance with 1978 amendments to the Endangered Species Act. Critical Habitat was reproposed for these two species on March 19, 1980 (and both a public meeting and hearing were subsequently held on the proposal).

The Texas wild rice and fountain darter are both already listed as Endangered (F.R. 4/26/78) and their Critical Habitats were proposed for the first time in the March 19, 1980, notice.

The greatly restricted distribution of these four species, only known from the San Marcos River system in Hays County, Texas, and apparent intolerance of habitat conditions outside the immediate vicinity of this spring system,

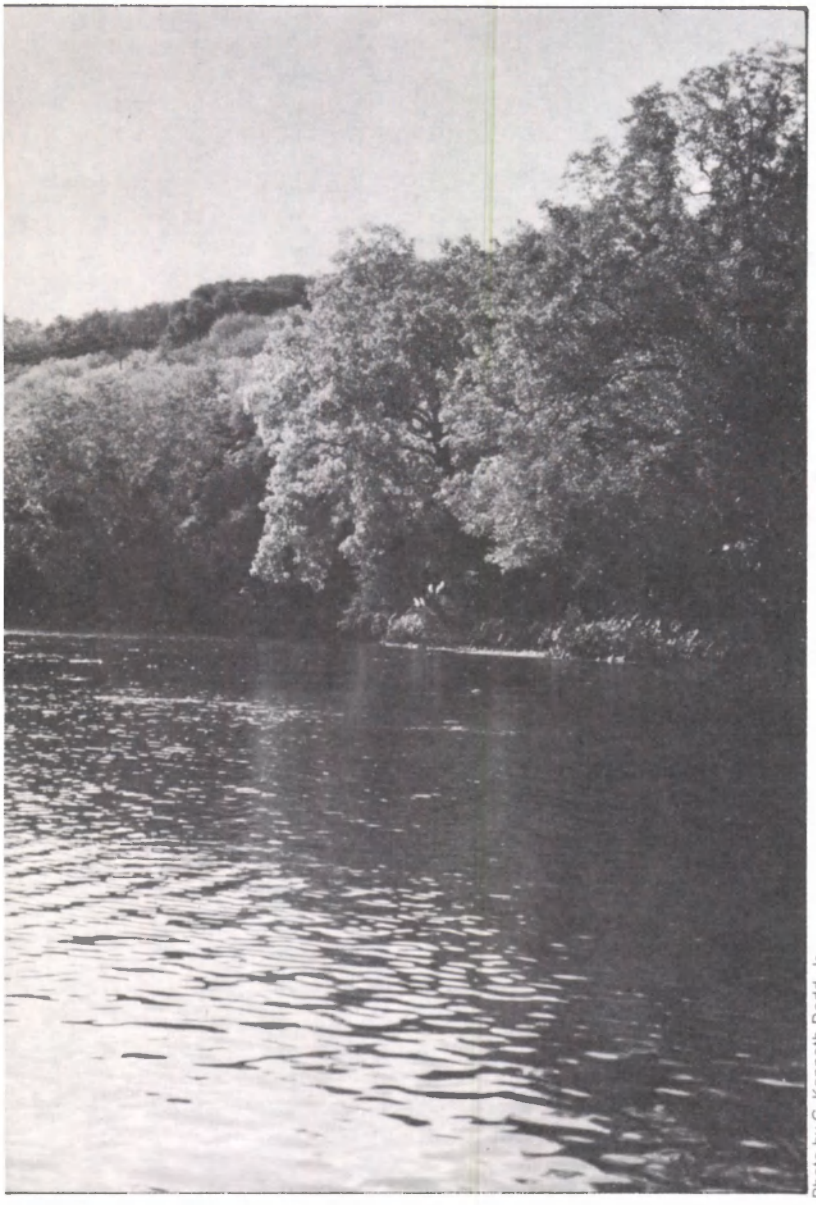
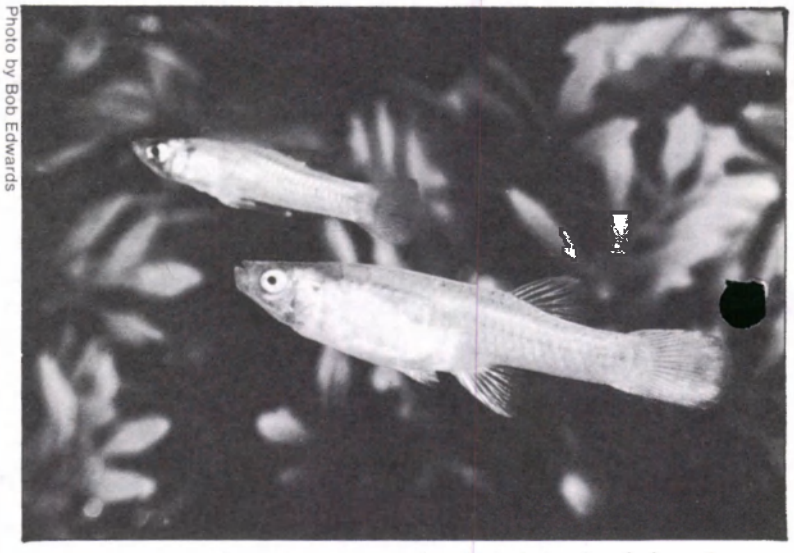


Photo by C. Kenneth Dodd, Jr.

Photo by Bob Edwards



The Endangered San Marcos gambusia is found only in a 1-mile stretch of the San Marcos River.

Spring Lake in Hays County, Texas is part of the area determined to be Critical Habitat for the San Marcos salamander, Texas wild rice, and fountain darter.

gives evidence to their vulnerability. Anticipated increased use of groundwater and the probability of contaminants as a result of real estate development activity over aquifer recharge zones constitute serious potential threats to the continued existence of the species. A series of drought years similar to 1956 conditions, coupled with the effects of increasing human impact, could bring about the extirpation of these species from major segments if not all of their currently known ranges.

San Marcos Gambusia

The San Marcos gambusia is found only in a 1-mile stretch of the San Marcos River. The areas inhabited by this fish are open areas away from the stream banks with a minimum of aquatic vegetation over a mud bottom with little current. The habitat is also characterized by thermal constancy. Any actions which would increase vegetation, disrupt the mud bottom, or alter the temperature regime could easily eliminate the species.

Texas Wild Rice

A limited range, apparent inability to reproduce sexually in its native habitat, habitat destruction, and the possibility of hybridization are the major threats to the continued existence of this plant. Texas wild rice is adapted to conditions of clear water, uniform annual flow rate, and constant year-round temperature. The plants do not survive in stagnant water. Any action which would significantly alter the flow or water quality of the San Marcos River, where it occurs, could adversely modify the Critical Habitat. The Critical Habitat for the Texas wild rice includes Spring Lake and the San Marcos River downstream to its confluence with the Blanco River.

San Marcos Salamander

Threatened status is due mainly to a limited range coupled with the threat of lowered water tables affecting Spring Lake, the headwaters of the San Marcos River. The owner of Spring Lake, Aquarena Springs, has taken care to safeguard the animals in the lake and has cooperated with biologists from the Texas Parks and Wildlife Department to ensure that populations can be maintained. However, the lowering of the water tables in the area such that Spring Lake could become dry or intermittent could destroy the species' only habitat. Because of a large population size, take is not seen as a threat to the species, hence the special rule.

Fountain Darter

Populations of this fish species could be reduced or eliminated by the destruction or significant reduction of aquatic vegetation in Spring Lake and the San Marcos River. The preferred habitat of adult and young fountain darters are areas with rooted aquatic vegetation which grows close to the substrate with filamentous algae present. The darter could also be affected by impoundments, excessive withdrawal of water, and pollution. An impoundment on the lower portion of the San Marcos River apparently eliminated the species in that section of the river. The Comal River population of fountain darter was extirpated when its habitat was reduced to isolated pools after excessive removal of water. Critical Habitat includes only the fountain darter's present range in the San Marcos River.

Because each of these species occupies an extremely restricted range, and is, therefore, highly susceptible to changes in habitat, the Service has designated the entire known respective ranges of these species, within the San Marcos River system, as Critical Habitat.

Five Species Proposed as Endangered in U.S.

Because of an inadvertent oversight, individuals of the short-tailed albatross, thick-billed parrot, wood bison, northern swift fox, jaguar, margay, and ocelot which may occur in the United States are not officially listed as Endangered species, although all such individuals occurring in foreign countries are now so listed. The Service is proposing to list five of these species as Endangered in their U.S. ranges to correct the oversight which led to their exclusion from the list. (F.R. 7/25/80).

(These species were listed under the 1969 Endangered Species Conservation Act, which had separate procedures and separate lists for foreign and domestic species. When the 1973 Endangered Species Act repealed the 1969 Act, these species were placed on the 1973 combined list without completing the procedures for listing species which occur in the U.S. It had always been the intention of the Service to list as Endangered all individuals of the above seven species, both foreign and domestic.)

The northern swift fox *(Vulpes velox hebes)* is not being proposed for listing in the U.S. at this time because of uncertainties regarding its taxonomic status and distribution. These uncertainties are being investigated, and a proposal to list the species may be forthcoming when studies are completed. The wood bison *(Bison bison athabascae)* is not being proposed because no pure-bred individuals are known to occur in the U.S. The Yellowstone bison herd, which is basically wood bison in genetic makeup, is known to be mixed with plains bison stock *(B. b. bison)* and thus contains hybrid individuals.

The factors affecting the proposed species are outlined below:

- Short-tailed albatross *(Diomedea albatrus)*—In the late 1800's and early 1900's, plume hunters virtually eliminated the species. Formerly an abundant bird throughout the North Pacific, the total population (which may have numbered over a million in prehistoric times) is now thought to be less than 150 birds. Even when abundant, this bird approached land no closer than two miles except when nesting.
- Thick-billed parrot *(Rhynchopsitta pachyrhyncha*—This parrot nests in the Sierra Madre Occidental of northwestern Mexico and wanders north over the central plateau to the State of Michoacan. Large flights into southern Arizona and probably southwestern New Mexico occurred up to 1919. The parrot appears to be totally dependent on mature highland pine forests for food (pine seeds) and nest sites (abandoned woodpecker holes or natural cavities). Because of cutting of the Mexican forests, the bird has rarely been seen in the last several decades, even in Mexico. The last verified U.S. reports were in the 1930's.

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• Jaguar (*Panthera onca*) There are probably no resident or breeding populations left in the U.S., but occasional stragglers wander into New Mexico, Arizona, and Texas, where they are generally shot as unwanted predators. Jaguars have not been reported in the wild from New Mexico since 1904, from Arizona since 1971, and from Texas since 1948.

• Ocelot (*Felis pardalis*)—The primary distribution of this species is Central and South America. Formerly, the ocelot was known to occur in parts of Arizona and Texas. Today, populations are known to exist only in the Rio Grande area of southeastern Texas, where signs indicate their presence in eastern Cameron County, and scattered portions of Willacy and Kennedy Counties. The Ocelot is threatened by habitat destruction in the form of brush clearing for growing citrus crops, vegetables, and cotton. By 1940, most suitable ocelot habitat in Texas was gone. Predator control operations in Arizona and Texas have also helped extirpate or reduce ocelot populations.

• Margay (*Felis wiedii*)—The margay is known in the United States from a single specimen taken at Eagle Pass, Maverick County, Texas. There are almost certainly no resident populations in the U.S. now, but it is possible that an individual may wander into Texas from Mexico as was probably the case with the U.S. specimen.

All of the above species are known to be Endangered in the areas of their primary distribution and abundance outside of the United States. Because U.S. populations are only peripheral to the main populations of these species, the extreme precariousness of the U.S. populations is emphasized. Critical Habitat is not being proposed for any of these species at this time because such a determination is impossible given the migrating nature of these species.

The Service is soliciting any comments or suggestions concerning any or all of the species in this proposal from the public, other concerned governmental agencies, the scientific community, industry, private interests, or any other interested party. Comments should be sent to the Director (OES), U.S. Fish and Wildlife Service, Department of the Interior, Washington, D.C. 20240, and should be received by September 23, 1980.

Photo by S.M. Chambers

Hay's Spring amphipod, which occurs only in a small spring in the Nation's Capital, is proposed as an Endangered species.

Endangered Status Proposed for Hay's Spring Amphipod

The Hay's spring amphipod *(Stygobromus hayi),* an aquatic crustacean occurring only in a small spring within the National Zoological Park in Washington, D.C., is being proposed by the Service as an Endangered species (F.R. 7/25/80).

Originally proposed for Endangered status on January 12, 1977, and subsequently withdrawn on December 10, 1979, because of 1978 amendments to the Endangered Species Act which substantially modified procedures for listing species, the Hay's spring amphipod is being reproposed based on significant new information. (This species was originally proposed under the common name Hay's spring scud.) Because of the threat of elimination of its only known habitat through pollution, construction activities, and other disruptions, this species is in danger of extinction.

Eyeless and unpigmented, the Hay's spring amphipod is found only in a small spring in the National Zoological Park. The spring emerges from the rocky western wall of Rock Creek Valley and flows about 35 meters into Rock Creek. The portion of the spring inhabited by the amphipod is less than 1 meter wide. The small size of the habitat makes the species extremely vulnerable to construction activities which have already drastically reduced the number of springs in Washington.

If construction activities are not carefully carried out, they could easily result in the elimination of the spring habitat. Such activities have eliminated most of Washington's springs during the last 100 years. A fence now surrounds the spring, but this is not adequate protection from heavy equipment moving even slightly onto the hillside from which the spring flows.

Because the species is so rare, possible collection for scientific or other purposes could pose a threat to the continued existence of the Hay's spring amphipod.

Interested persons or organizations are requested to submit comments to the Director (OES), U.S. Fish and Wildlife Service, Department of the Interior, Washington, D.C. 20240. Comments from the public must be received by September 23, 1980.

Service Lists Two Butterflies

Two butterflies, the Palos Verdes blue *(Glaucopsyche lygdamus palosverdesensis)* and Oregon silverspot *(Speyeria zerene hippolyta),* have been listed by the Service as Endangered and Threatened species, respectively, with Critical Habitat determined (F.R. 7/2/80).

Both species had been proposed for listing in the July 3, 1978, *Federal Register* (see the August 1978 BULLETIN), and on March 26, 1980, Critical Habitat was reproposed for the Oregon silverspot and proposed for the first time for the Palos Verdes blue butterfly (see the April 1980 BULLETIN).

Palos Verdes Blue

Occurring at only three sites on the Palos Verdes Peninsula, Los Angeles County, California, this lycaenid butterfly is threatened by weed control practices that adversely affect its larval foodplant, a locoweed *(Astragalus trichopodus leucopsis),* and in one location, recreational development. The Palos Verdes blue butterfly was originally known from only one site, where it was extirpated by housing development.

A public meeting and a public hearing were held on the Critical Habitat proposal for this species on April 18 and May 12, 1980, respectively.

Oregon Silverspot

An orange and brown butterfly with silver spots on the underwings, the Oregon silverspot formerly occurred along the coasts of Oregon and Washington, but most of the colonies have been extirpated due to housing and park development. At present, only one healthy colony is known. The butterfly, which belongs to the family Nymphalidae, is threatened with housing development and increased recreational use of the coastal areas to which it is restricted.

This species is found only in the salt spray meadows along the extreme edge of the Pacific Coast. It has been reported from one site in Washington and seven sites in Oregon. The only healthy colony is the one occurring at the Rock Creek-Big Creek site in Lane County, Oregon. This area has been designated as Critical Habitat.

The only apparent Federal involvement affecting the designated Critical Habitat is the Forest Service's management of portions of Siuslaw National Forest. The Forest Service intends to protect the Oregon silverspot butterfly and its habitat.

Both a public meeting and a public hearing were held on the reproposal of Critical Habitat for the Oregon silverspot butterfly on April 15 and April 29, 1980, respectively.

The effective date of the rulemaking listing the Oregon silverspot butterfly as Threatened with Critical Habitat is October 15, 1980.

Key Mud Turtle Proposal Withdrawn

In line with 1978 amendments to the Endangered Species Act, the Service is withdrawing its proposal to list as Endangered with Critical Habitat the Key mud turtle *(Kinosternon bauri bauri)* (F.R. 7/16/80).

Under the amendments, a proposed rule which has not been finalized within two years of its publication in the *Federal Register* must be withdrawn. (The amended Act also authorized a 1-year suspension of all withdrawals until November 10, 1979.) The time limit has expired for listing the Key mud turtle, originally proposed with the Plymouth red-bellied turtle (F.R. 5/19/78—see the June 1978 BULLETIN). This turtle may only be reproposed for listing if it is determined that sufficient new information is available to warrant such a proposal. The Plymouth red-bellied turtle *(Chrysemys rubiventris bangsi)* was listed as Endangered with Critical Habitat on April 2, 1980.

Leopard Comment Period Extended

The proposal to reclassify the leopard would also permit the importation into the United States of legally-taken, sport-hunted trophies under the terms and conditions specified by the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). (The leopard is listed on Appendix I of CITES, which means that a valid export permit from the country of origin would be required, and a valid permit must be issued by the U.S. Management Authority for the Convention, before a trophy could be imported. An export permit will not be granted by a nation party to the Convention unless its Scientific Authority finds that such export will not be detrimental to the survival of the species. The U.S. Management Authority will not issue an import permit unless it determines that an export permit has been granted and that the importation is not for primarily commercial purposes, and unless the U.S. Scientific Authority has advised that the importation is for purposes which are not detrimental to the survival of the species.)

All comments and materials must be received no later than November 24, 1980, by the Director (OES), U.S. Fish and Wildlife Service, Department of the Interior, Washington, D.C. 20240.

KANGAROO COMMENT PERIOD REOPENED

The comment period on the Service's proposal to permit commercial importation of the red *(Megaleia rufa),* eastern gray *(Macropus giganteus),* and western gray *(M. fuliginosus)* kangaroos will be reopened between September 16 and October 1, 1980 (F.R. 8/22/80). The Service will also hold a public hearing on this proposal. The public hearing will be held Tuesday, September 16, 1980, at 9:00 a.m. in Room 8068, Main Interior Department Building, 18th and C Streets, N.W., Washington, D.C.

Silver Rice Rat Reviewed

The Service has accepted a petition to list a small mammal, the silver rice rat *(Oryzomys argentatus),* as either an Endangered or Threatened species (F.R. 7/14/80). Only recently discovered during the winter of 1972-73 on Cudjoe Key, Florida, the silver rice rat is threatened by loss of habitat due to drainage and filling for commercial development, road construction, and mosquito control.

Known from only four specimens (the two collected on Cudjoe Key and two more collected in 1976 and 1980 on nearby Raccoon Key), it is possible that the species occurs on several other islands, but its rarity and secretive nature make it difficult to locate.

The Service is now assembling supporting information to determine if the species warrants a proposal for listing and Critical Habitat determinations.

Service Reviews Key Largo Woodrat, Cotton Mouse

Two small mammals, the Key Largo woodrat *(Neotoma floridana smalli)* and Key Largo cotton mouse *(Peromyscus gossypinus allapaticola)* have been recommended, through a petition to the Service, for addition to the U.S. List of Endangered and Threatened Wildlife. (F.R. 7/28/80).

Both species formerly occurred throughout Key Largo, Florida, in mature tropical hammock-type forest. They are now restricted to an area northeast of where U.S. Highway 1 enters the Key from the mainland. Both species have been artificially introduced on Lignum Vitae Key, a much smaller island southwest of Key Largo.

On Key Largo, destruction of native tropical forest for commercial and residential development has already eliminated the woodrat and cotton mouse from the southern part of the island. Planned construction of a fresh-water pipeline from the mainland through northern Key Largo would contribute to intensive development in the area and the probable loss of the last significant blocks of suitable habitat for both species—and therefore to possible extinction. Even without the pipeline, the habitat is limited to only a few hundred acres, leaving the woodrat and cotton mouse vulnerable to various environmental disruptions. The Service is now assembling supporting information to determine if the Key Largo woodrat and Key Largo cotton mouse warrant a proposal to be listed and have Critical Habitat determined.

Threatened Status Sought for Gypsum Wild Buckwheat

The Service has proposed to list gypsum wild buckwheat *(Eriogonum gypsophilum)* as a Threatened species and to determine its Critical Habitat (F.R. 7/25/80).

A member of the knotweed family, (Polygonaceae), this small, erect, herbaceous perennial, measuring about 8 inches high, is restricted to gypsum soils. The plant's entire range is limited to a 130-acre area in the Seven Rivers Hills of Eddy County, New Mexico, at elevations from 3,290 to 3,450 feet. The area occupied by *Eriogonum gypsophilum* is managed by the Bureau of Land Management (BLM) and the Water and Power Resources Service. The area proposed as Critical Habitat—semi-arid with an average annual precipitation of 14 inches—is on land administered entirely by BLM.

Historically, the species has been known from this one locality for nearly 70 years. Construction of U.S. Highway 285 reduced the eastern portion of the plant's range. Other actions which pose threats to the species are increased grazing, off-road vehicle use, and the proposed Brantley Dam project. According to the Environmental Statement prepared on the project, the dam itself is expected to have only a minor impact on the plant. The lowest elevation at which the plants are estimated to occur is 3,290 feet, 10 feet above the hypothetical project flood level of the dam. If a flood should occur above this level, it should be of very short duration and is predicted to be harmless unless the plants are in flower, in which case reduced seed set would be expected.

It is possible that the stability of the gypsum may be affected near the reservoir, as it has been on the east side of Lake McMillan where slumping of gypsum bluffs has occurred. This could result in several hundred plants out of an estimated population of 2,800 being affected by new patterns of erosion and changes in microhabitat. The Water and Power Resources Service believes that the plants and the dam can co-exist and note that the plant's well-being has been included in the project's planning process. They also point out that the Brantley Dam has been relocated south-southwest of the closest population of this species.

A public meeting on this proposal was held on August 27, 1980. Comments from the public must be received by September 23, 1980, and should be sent to the Director (OES), U.S. Fish and Wildlife Service, Department of the Interior, Washington, D.C. 20240.

Todsens Pennyroyal Proposed As Endangered

Todsens Pennyroyal *(Hedeoma todsenii),* a native plant of New Mexico, has been proposed by the Service for listing as an Endangered Species with Critical Habitat. (F.R. 7/25/80). A member of the mint family (Lamiaceae), Todsens pennyroyal occurs in only two known populations on steep, gravelly gypsum limestone on the White Sands Missile Range in Sierra County.

First discovered in 1978, Todsens pennyroyal is a perennial herb measuring 4-8 inches in height and is somewhat woody at the base. Its orange-red flowers are solitary along the stem and are about 2 inches long.

The two populations of this plant number about 750 individuals. The reproductive potential, as measured by seed set, is low with an average seed yield of 0.22 seeds per flower.

The remoteness of the two populations and the restricted nature of the White Sands Missile Range provide the species with considerable protection. However, the fragile habitat and small number of individuals leaves the species extremely vulnerable and in need of protection. It is unlikely that the plants would be hit by a missile, but even minor changes in the usage of its protected canyons could potentially threaten the continued existence of the species Construction activities or increased ground traffic in the Critical Habitat could jeopardize the species' habitat without proper planning for its protection.

Critical Habitat for Todsens pennyroyal includes the entire area in New Mexico where the species is known to occur. This area encompasses 2 square kilometers of the White Sands Missile Range, which is administered by the Department of the Army.

A public meeting was held on this proposed rule on August 26, 1980. Comments are solicited from the public and must be received by September 23, 1980. Address all correspondence to the Director (OES), U.S. Fish and Wildlife Service, Department of the Interior, Washington, D.C. 20240.

PUBLIC MEETINGS/HEARINGS

Due to the often unavoidable short notice in scheduling public meetings and hearings (in compliance with 1978 Amendments to the Endangered Species Act) for certain listing and Critical Habitat proposals, we regret that we cannot always relay adequate notice to our readers. Until further notice, we will attempt to provide available information through this column. Due to space limitations and uncertainty of *Federal Register* publication dates, summaries of pertinent proposed rulemakings may not necessary accompany meeting notices, but may be included in a subsequent issue of the *Bulletin.*

Species/Action	Affected State(s)	Locations of Meetings/Hearings	Date	Time
Maryland darter: Reproposed C.H.	MD	Meeting: Dickson Hall, Building 3074, Raritan Ave., Aberdeen Proving Ground	9/30/80	7:00 p.m.
Kangaroo: Proposed commercial import		Hearing: Room 8068, Main Interior Dept. Bulding, 18th and C Streets, N.W., Washington, D.C.	9/16/80	9:00 a.m.

E—Endangered
T—Threatened
C.H.—Critical Habitat

PERMANENT PROTECTION AREAS PROPOSED FOR MANATEE

The service has proposed the establishment of three permanent protection areas for the Endangered West Indian manatee *(Trichechus manatus)* in Kings Bay, Crystal River, Florida (F.R. 8/12/80). This proposal follows the emergency establishment of a manatee refuge, in the same area, which was effective January 11 through March 31, 1980 (see the January 1980 BULLETIN).

The manatee, a marine mammal, depends upon warm water sources for survival during the winter months when cold water temperatures prevail. The headwaters of the Crystal River in Kings Bay is one of only six natural warm water areas used by the manatee during the winter months. Over 100 individual manatees have been known to use this area in recent years. The entire Florida manatee population is estimated at 1,000 animals.

Kings Bay is used extensively for recreational activities such as boating, diving, and swimming. One of the main attractions to this area is the presence of manatees. Although some manatees become accustomed to divers and will actually seek contact with them, most manatees will leave areas associated with human activity.

Under regulations promulgated by the Service (F.R. 10/22/79), manatee protection areas may be established "whenever there is substantial evidence that there is imminent danger of a taking of one or more manatees, and that such action is necessary to prevent such taking." This includes showing that such action is necessary to prevent the harassment of manatees. According to Service personnel, manatees are being harassed to such an extent that their normal use of the warm water areas around the springs at the headwaters of Crystal River is being disrupted. Boating, swimming, and diving (both SCUBA and snorkle diving), may be directly affecting the manatees breeding and calf-rearing activities. Recreational activities also force manatees to use colder waters, subjecting them to cold-related stress and disease.

A description of the three proposed manatee protection areas follows:

(1) Banana Island Sanctuary—This location is critical to the maintenance of a healthy manatee population in Kings Bay. It is immediately adjacent to the main spring and includes a large secondary warm water spring. The area also contains an abundance of preferred manatee food plants. Diving and boating activities are common in this area. The proposed sanctuary will not include areas, such as the main spring, which are essential for the continuation of certain diving activities. When divers, swimmers, and boaters enter the main spring area, the manatees retreat, usually to the proposed sanctuary.

(2) Sunset Shores Sanctuary—Located directly south of the main spring, this sanctuary includes at least three known secondary warm water springs. All but the most tolerant manatees are forced out of the spring area by intensive waterborne activities, depriving them of this warm water refuge. Designation of this area, as well as the Banana Island site, as a manatee sanctuary, prohibiting all waterborne activity during the winter months, is expected to be beneficial to divers and to manatees. More manatees will be able to remain in the vicinity of the main spring near Banana Island, providing more opportunities for divers to see them.

(The two proposed sanctuaries at Banana Island and Sunset Shores will be designated by posting of signs and a floating line of sealed plastic (PVC) pipe sections. Openings will be provided in the Sunset Shores sanctuary to allow the entry of boats for access by residents. Both sanctuaries will provide access for emergency and law enforcement boats.)

(3) Magnolia Springs Sanctuary—This sanctuary is located in a section of canal within the Springs O'Paradise subdivision in Crystal River. A warm water spring, known as Magnolia Spring or the Alligator Hole, is within the proposed sanctuary. Because of the confines of the canal, their is an increased danger of manatees being struck by boats. Private residents will be allowed access to their property by boats, but will be required to maintain idle speed within the sanctuary.

The area adjacent to Warden Key, which was previously designated as an emergency manatee sanctuary, is not being proposed as a permanent sanctuary because of the absence of any warm water springs.

A public meeting was held on this proposal on August 26, 1980. Comments from the public on this proposal must be received by September 12, 1980. They should be submitted to the Area Manager, Area Office, U.S. Fish and Wildlife Service, 15 North Laura Street, Jacksonville, Florida 32202.

Peregrine on the Rebound

Continued from page 9

began on July 16, and the birds have since flown freely and should soon disperse from the area. (Like all other city-hacked chicks, these birds were equipped with miniature radio transmitters to monitor their movements after fledging until they become fully independent.) Biologists also hope that one of the five males in this troop will mate with the lonely female that has wintered the past 3 years atop the 22-story Virginia National Bank, just across from the Royster Building.

East and West: Efforts Continue

Large-scale propagation efforts will have to be maintained at Cornell's hawk barn, according to the experts, if the peregrine falcon is ever to recover to a stable status.

The original eastern population of about 250 pairs is now considered an unlikely goal, even if the required number of birds are hacked to the wild, as much of the habitat once suitable for the peregrine has been altered. The Service-appointed Eastern Peregrine Falcon Recovery Team hopes, however, that perhaps 100 breeding pairs may be restored to the east coast through cooperative Cornell/Federal/State efforts, ultimately requiring the release of more than 1,000 falcons. (Of the number released thus far, about 30 percent are thought to have survived to breeding age.)

While the major focus has been on restoring this species to the eastern part of the country, other efforts have been underway in the western States where some 150 pairs of nesting peregrines still exist (inclusive of the Pacific Coast). A branch of The Peregrine Fund also supported by the Service with sponsorship from the Colorado Department of Natural Resources and other organizations has been set up at Ft. Collins, Colorado, under the management of William A. Burnham. Ornithologists there are concentrating mainly on "stuffing" and "fostering" at active eyries in the hope of bolstering peregrine recovery throughout the Nation.

BOX SCORE OF SPECIES LISTINGS

Starting with this issue, we will use a new format for presenting listing tallies in the Box Score. As below, a new "Species Total" column indicates the actual number of species represented under the other four categories, rather than the total of the columns. A few species are counted, for example, under both Endangered and Threatened categories, and several are counted as both U.S. and Foreign. Under the new Species Total, however, "double listings" are counted only once.

Category	*Endangered*		*Threatened*		* *Species Total*
	U.S.	Foreign	U.S.	Foreign	
Mammals	32	242	3	20	279
Birds	66	158	3	0	213
Reptiles	13	61	10	4	75
Amphibians	5	8	3	0	16
Fishes	33	15	12	0	56
Snails	2	1	5	0	8
Clams	23	2	0	0	25
Crustaceans	1	0	0	0	1
Insects	7	0	4	1	11
Plants	49	2	7	3	58
TOTAL	231	489	47	28	742

Number of species currently proposed: 59 animals
(6 plants)
Number of Critical Habitats listed: 42
Number of Recovery Teams appointed: 68
Number of Recovery Plans approved: 39
Number of Cooperative Agreements signed with States:
36 (fish & wildlife)
6 (plants)

July 31, 1980

NEW PUBLICATION

The U.S. Forest Service has published a pamphlet entitled, *The Red-Cockaded Woodpecker:* Notes on Life History and Management. This colorful publication is available free from the Southeastern Forest Experiment Station, P.O. Box 2570, Asheville, North Carolina 28802.

ENDANGERED SPECIES TECHNICAL BULLETIN

Department of the Interior • U.S. Fish and Wildlife Service • Endangered Species Program, Washington, D.C. 20240

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